



An Energy Efficiency Workshop & Exposition

Pittsburgh, Pennsylvania

A Technology-Specific Super ESPC for Biomass and Alternate Methane Fuels

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www.energy2000.ee.doe.gov



❑ What We Are

- One of DOE's 15 National Labs
- Government owned & operated

❑ What We Do

- Shape, fund, & manage extramural RD&D programs
- Conduct on-site science and technology research
- Conduct analyses to support policy development



Our RD&D Activities



**Strategic Center for
Natural Gas**

Coal Power Systems

**Climate Change
Policy Support**

**Transportation
Fuels**

**Environmental
Management / Defense
Programs**

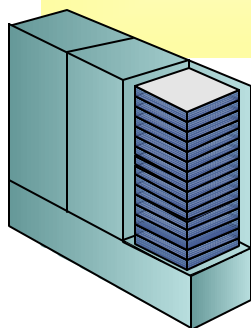


Relevant NETL Programs



Distributed Generation

PAFC - entering commercial market
MCFC - near-term, high efficiency
SOFC - near-term, high eff.
Hybrid turbine/fuel cell - ultimate efficiency
Recip Engine - lowest cost



Gas Fuels

Natural gas-to-liquids
Upgrading low-quality gas
Membranes for syngas and H₂ production
Vision 21 plants



Global Climate Change

Policy support
International projects in 16 countries

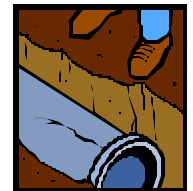
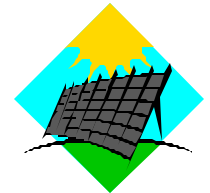




Tech-Specific Super ESPCs



- ❑ Emphasize “emerging” technologies
- ❑ Feature ESCOs with specialized expertise
- ❑ Three are currently available
 - photovoltaics
 - solar thermal concentrating systems,
 - geothermal heat pumps
- ❑ Coming soon...





The Fourth Tech-Specific ESPC



Biomass and



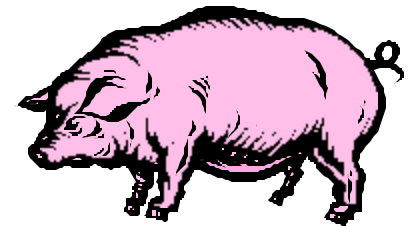
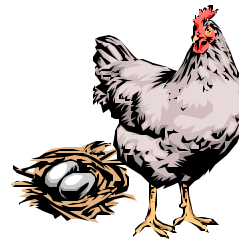
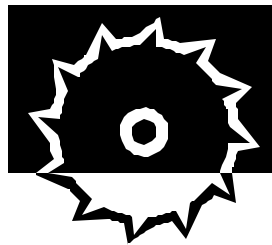
Alternate

Methane

Fuels



- ❑ any organic matter that is available on a renewable or recurring basis
 - dedicated energy crops and trees
 - wood and wood residues
 - animal wastes
 - etc.





- ❑ landfill methane
- ❑ wastewater treatment digester gas
- ❑ coalbed methane





Supports Two Executive Orders



- ❑ EO-13123, “Greening the Government Through Efficient Energy Management”
 - requires 35% cut in Federal energy by 2010 (from 1985 levels)
- ❑ EO-13134, “Developing and Promoting Biobased Products and Bioenergy,”
 - stimulates the early adoption of technologies that will make bioenergy cost-competitive



Scope of BAMF Projects



- ❑ Federally-owned facilities in the U.S., its territories and internationally
- ❑ Must reduce energy costs
 - fuel switching may not reduce energy use
- ❑ BAMF project must be the “primary” component; however
- ❑ “Conventional” ECMs may be included
 - HVAC, motors, lighting
- ❑ BAMF must be utilized on Federal property
 - otherwise, an ESPC is not the suitable vehicle





Scope, continued



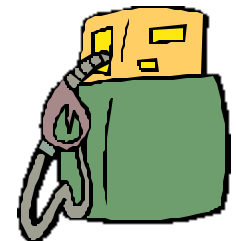
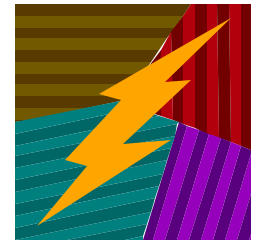
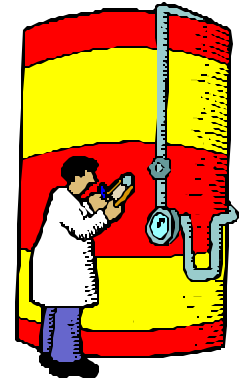
- ❑ Resource may be owned by the Federal facility, a local municipality or a private company
- ❑ If the resource is not Federally owned:
 - the delivery order will provide for the delivery of fuel to Federal property
 - if purchased by the gov't, its cost may be linked to an independent fuel price index, e.g., Inside FERC
 - the D.O. scope will be downstream of the delivery point, e.g., a flange or storage bin



Types of BAMF Projects



- ❑ Modify/install equipment to:
 - supplant or supplement conventional fuel with a BAMF, e.g. dual boiler burners
 - accomplish something new, e.g. CHP or biofueled vehicles
- ❑ Technologies
 - fuel cleanup / upgrading
 - co-firing (fluidized bed boilers)
 - CHP (fuel cells, microturbines, recipis)
 - emissions control





Environmental Advantages



- ❑ Reduced greenhouse gas emissions
 - marketable credits?
- ❑ “Green” power
 - electricity generated from renewable energy sources such as solar, wind, geothermal, hydropower, biomass and landfill gas
 - E.O. 13123 calls upon federal agencies to purchase green power



Solicitation



- ❑ **CBD announcement**
 - multiple IDIQ awards
 - \$50 million in total
 - RFP expected in late August
 - open for 3 months
 - awards expected by or before June 2001
- ❑ **Offerors must identify a Federal facility for their proposal**
 - limited market assessment will be provided in RFP

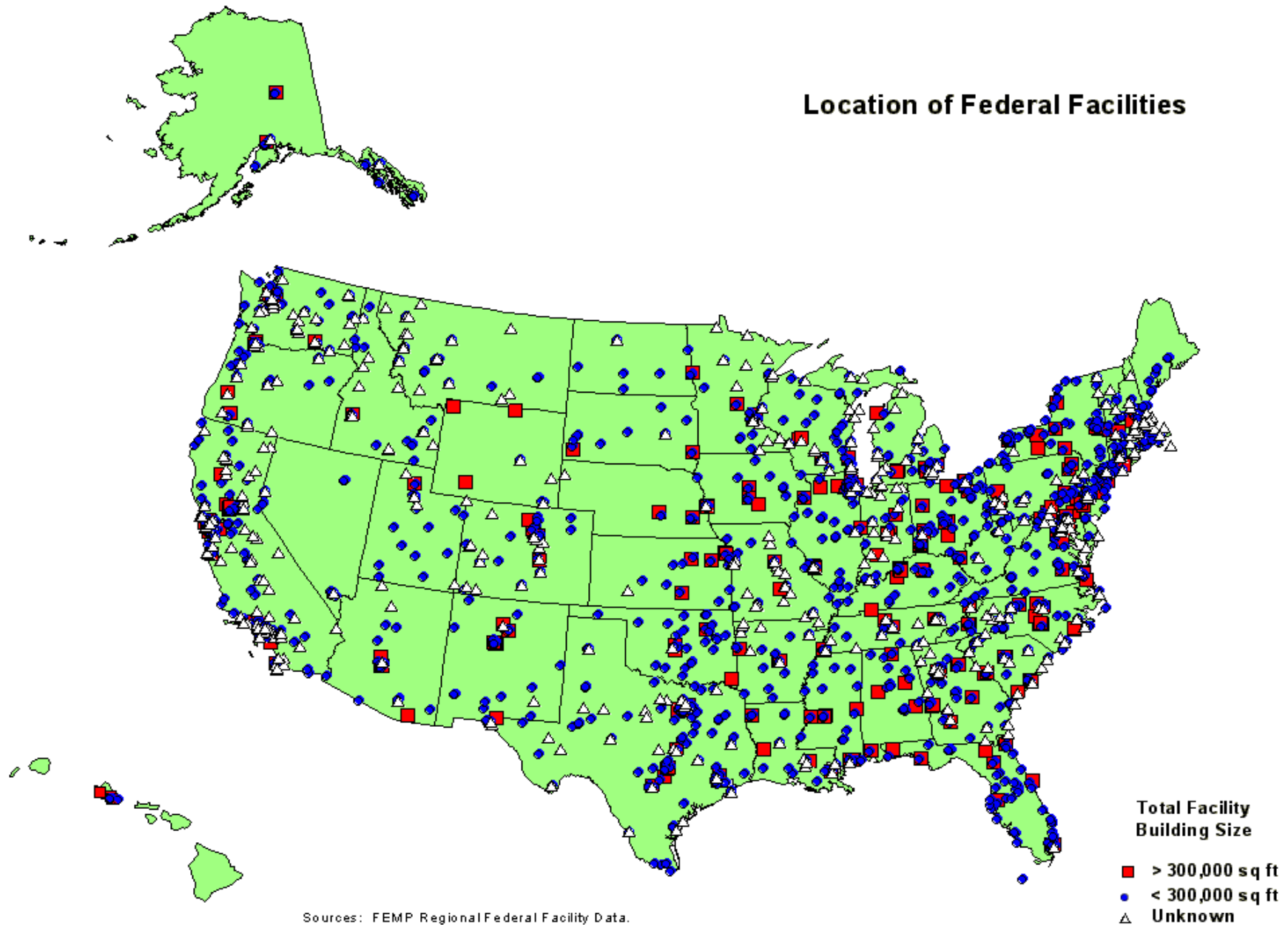


Preliminary Market Assessment



- ❑ Lists large Federally-owned facilities that are within 5 miles of a landfill or wastewater plant
 - assessments for other biomass fuels are planned
 - proposals are not limited to sites contained in assessment
- ❑ Omits Federal facilities with less than 300,000 ft² & all Air Force facilities
- ❑ Facility profiles include:
 - facility name and address
 - building types / square footage (from FEMP)
 - state average gas and electricity rates (from EIA)

Location of Federal Facilities



Sources: FEMP Regional Federal Facility Data.
GSA Worldwide Real Property Inventory System.

Air Force facilities were omitted.



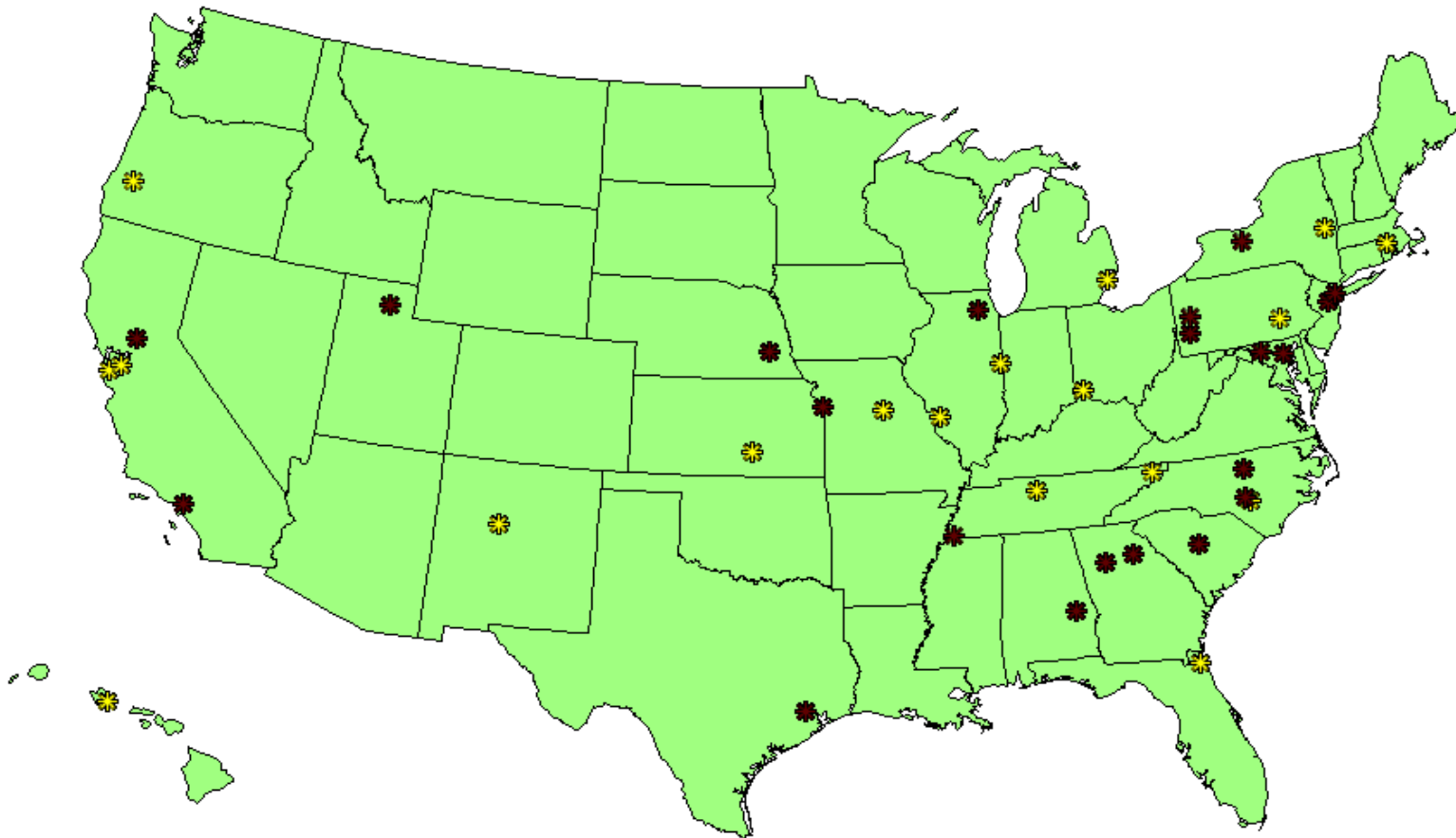
Market Assessment, continued



❑ Landfills

- data provided by EPA's Landfill Methane Outreach Program
- landfills with existing gas projects were omitted
- 22 landfills are within 5 miles of 39 large Federal facilities
- Landfill profiles include:
 - landfill name & address
 - tons of MSW in place
 - owner / operator contact information



Landfills Near Federal Facilities



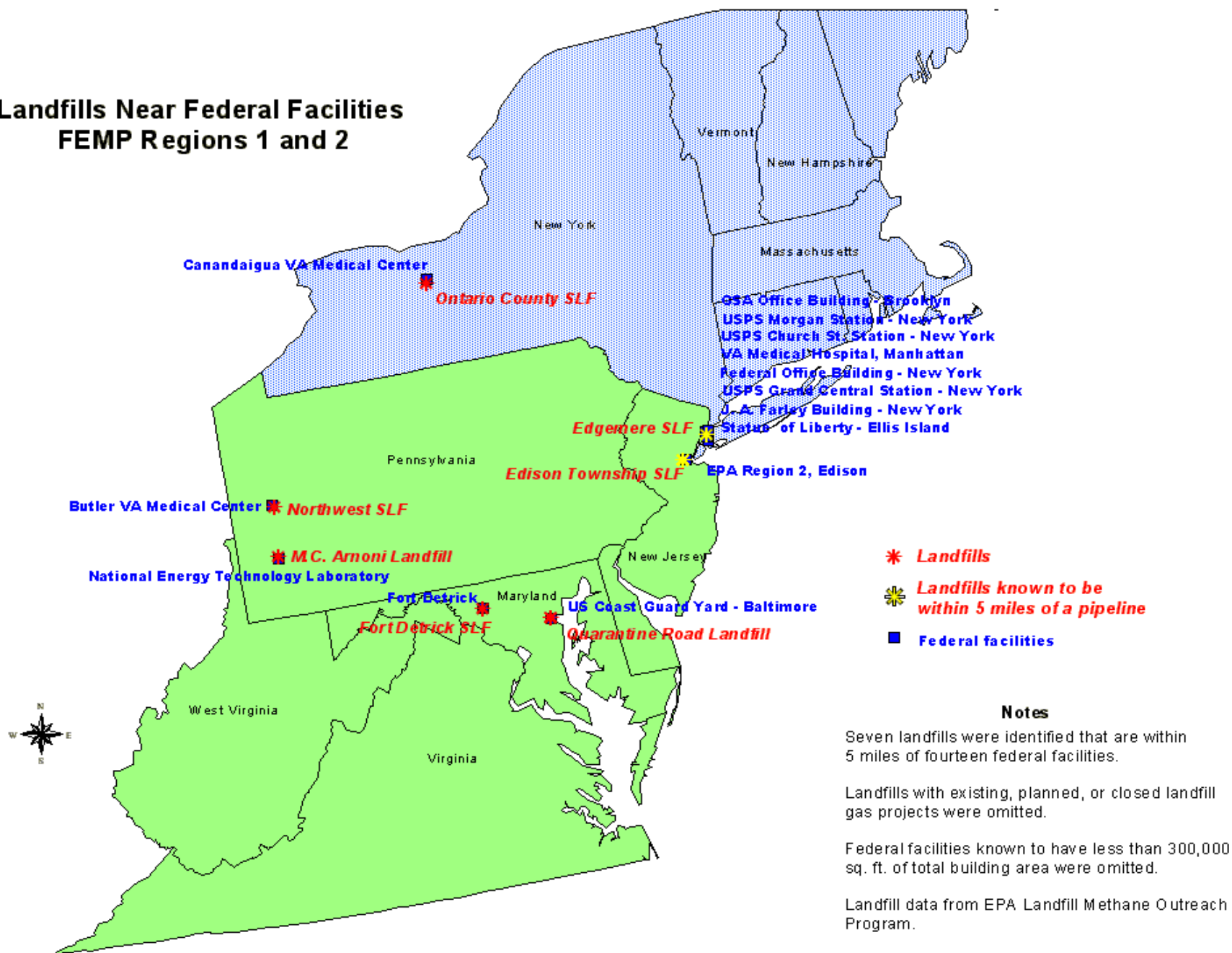
Notes

Landfill data from EPA Landfill Methane Outreach Program, State Landfill Profiles.

Federal facilities known to have less than 300,000 sq. ft. of total building area were omitted.

-  Landfills within 5 miles of federal facilities that have operational, under construction, planned or shut down LFG projects.
-  Landfills within 5 miles of federal facilities without existing LFG projects.

Landfills Near Federal Facilities FEMP Regions 1 and 2



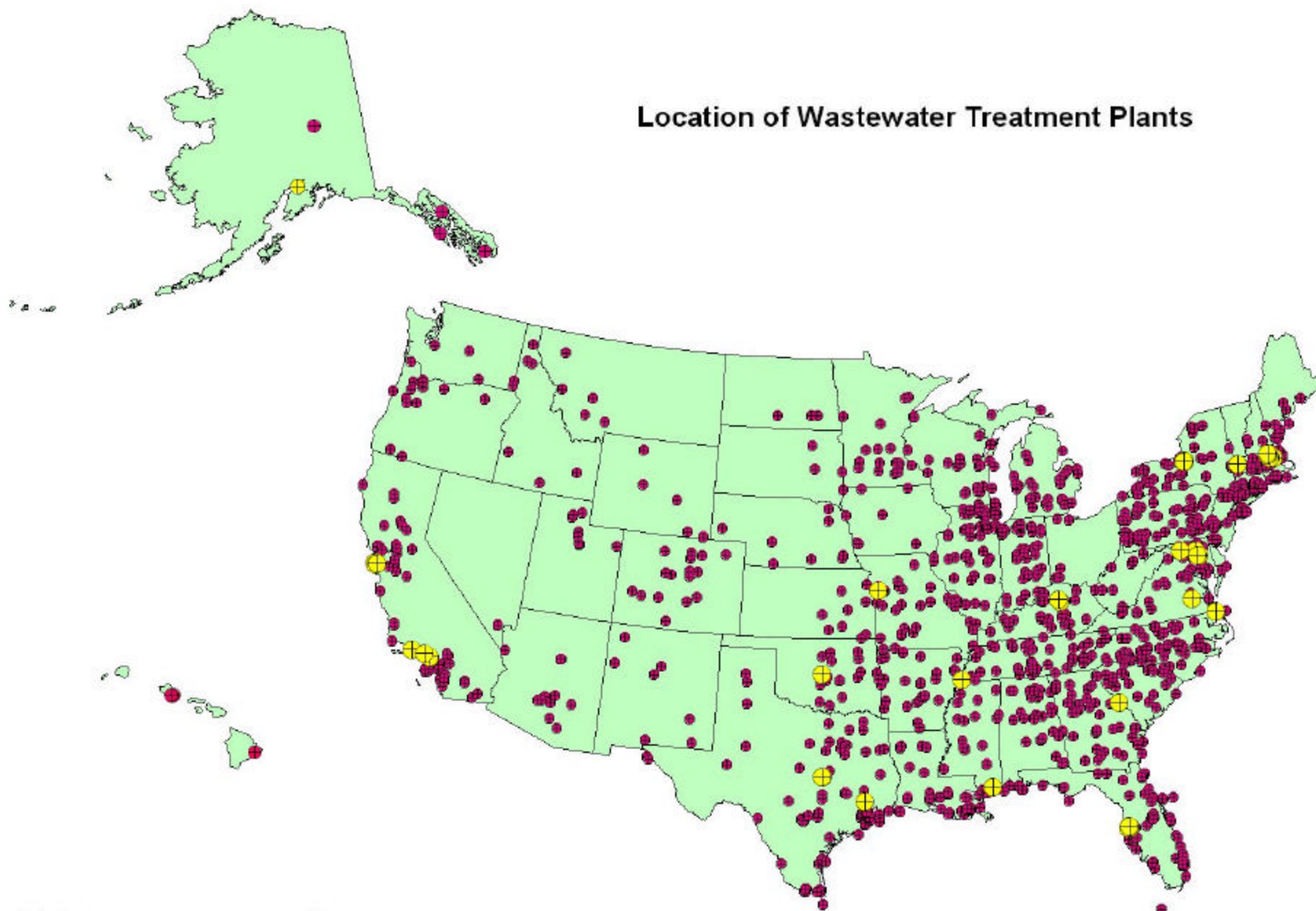


Market Assessment, continued



- ❑ **Wastewater treatment plants**
 - small plants that are likely aerobic (<3 MGD) were omitted
 - EPA's Water Discharge Permit (PCS) database
 - 34 wastewater treatment plants are within 5 miles of 31 large Federal facilities
 - plant profiles include:
 - NPDES # and address
 - type of ownership
 - average flow rate

Location of Wastewater Treatment Plants



All plants shown process greater than 3 million gallons of wastewater per day.

Federal facilities known to have less than 300,000 sq. ft. of total building area were omitted.



Wastewater Treatment Plant



**Wastewater Treatment Plant within
5 miles of a large Federal Facility**



Wastewater Treatment Plants Near Federal Facilities FEMP Region 2

- **Wastewater treatment plants**
- ⊕ **Wastewater treatment plants known to be within 5 miles of a pipeline**
- **Federal facilities**

Notes

Six wastewater treatment plants were identified that are within 5 miles of five federal facilities.

Federal facilities known to have less than 300,000 sq. ft. of total building area were omitted.

Wastewater treatment plants known to process less than 3 million gallons of wastewater per day were omitted..



For More Information...



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- ❑ <http://www.netl.doe.gov>
 - (select Business, then Solicitations)
- ❑ Visit our booth at Energy2000



Questions?

